

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A voice recognition device for a car navigation system, comprising:

a sound analyzer that acoustically analyzes a user's vocal utterance inputted by a voice input means and ~~for outputting~~outputs a feature vector for the input sound;

an acoustic-model storage that stores in advance respective acoustic models for predetermined sound units, either a syllable or a phoneme being deemed a sound unit;

a sound-unit recognizer that checks the input-sound feature vector against the acoustic models to output a correlated sound-unit recognition candidate string;

a word-and-position-information registration unit that correlates and registers in a word-and-position-information correlation dictionary the sound-unit recognition candidate string and position information acquired from a main unit of the car navigation system; and

a position-information searcher/outputter that calculates acoustic likelihoods by collating the input-sound feature vector outputted by the sound analyzer, against sound feature vectors for the sound-unit recognition candidate strings in the word-and-position-information correlation dictionary, and ~~outputting~~outputs, to the car navigation main unit, position information associated with that sound-unit recognition candidate string whose calculated acoustic likelihood is not less than a predetermined threshold.

2. (Currently Amended) A voice recognition registration device for a car navigation system according to claim 1, further comprising:

a confused-sound-unit matrix storage that stores in advance respective probabilities that an actual sound unit uttered by a human being will be recognized as a different recognition result as a consequence of the recognition precision of the sound analysis ~~means~~, for each of recognition-result sound units; and

a word developer that outputs a candidate resembling the sound-unit recognition candidate string by replacing each sound unit in the sound-unit recognition candidate string outputted by the sound-unit ~~recognition~~recognizer, with a recognition-result sound unit in which the probability that the confused-sound-unit matrix storage has stored for that sound unit is not less than a predetermined threshold;

wherein the word-and-position-information registration unit correlates the resembling candidate to the position information acquired from the car navigation system main unit and registers this information in the word-and-position-information correlation dictionary.

3. (Canceled)

4. (Previously Presented) A voice recognition index generator comprising:

a representative word selector that selects a single word as a representative word from an original set composed of a plurality of words;

an acoustically similar word grouper that extracts from the original set, a word in which the acoustic likelihood between a sound feature vector for the word and a sound feature vector

for the representative word is not less than a predetermined threshold, and ~~including~~ includes the extracted word in a same group as the representative word; and

an original-set replacer that passes to the representative word selector the word set left by removing from the original set the word affiliated by the group, as another original set to be processed by the representative word selector.

5. (Previously Presented) A voice recognition device for a car navigation system according to claim 1, wherein the position-information searcher/outputter includes a voice recognition index-searching device, and uses the voice recognition index-searching device to search for and output words, their pronunciations, and position information stored in the word-and-position-information correlation dictionary or an external storage device.

6. (Currently Amended) A voice recognition device for a car navigation system according to claim 5,

wherein a word developer extracts a probability stored in a confused-sound-unit matrix storage for each sound unit of ~~the~~ a resembling candidate, and outputs a probability list for the resembling candidate;

wherein the word-and-position-information registration unit correlates and registers in the word-and-position-information correlation dictionary both the probability list and the similar candidate with the position information; and

wherein the position-information searcher/outputter, after reading a resembling word candidate stored in the word-and-position-information correlation dictionary and the probability

list for that resembling word, and if the probability in its probability list is not less than a predetermined threshold, calculates the acoustic likelihood by checking the input-sound feature vector against the sound feature vector outputted by a sound feature vector generator and outputs the sound-unit recognition candidate string whose acoustic likelihood is not less than the predetermined threshold, and if the probability in the probability list is less than the predetermined threshold, the position-information searcher/outputter uses the voice recognition index-searching device to search for words, their pronunciations, and position information stored in the external storage device.

7. (Currently Amended) A car navigation system comprising:

- a current position detector;
- a map data storage;
- an image display;
- a graphical pointer;
- a destination input device; and
- a voice recognition device including:
 - a sound analyzer that acoustically analyzes a user's vocal utterance inputted by a voice input means and ~~for outputting~~outputs a feature vector for the input sound;
 - an acoustic-model storage that stores in advance respective acoustic models for predetermined sound units, either a syllable or a phoneme being deemed a sound unit;
 - a sound-unit recognizer that checks the input-sound feature vector against the acoustic models to output a correlated sound-unit recognition candidate string;

a word-and-position-information registration unit that correlates and registers in a word-and-position-information correlation dictionary the sound-unit recognition candidate string and position information acquired from a main unit of the car navigation system; and

a position-information searcher/outputter that calculates acoustic likelihoods by collating the input-sound feature vector outputted by the sound analyzer, against sound feature vectors for the sound-unit recognition candidate strings in the word-and-position-information correlation dictionary, and ~~outputting~~outputs, to the car navigation main unit, position information associated with that sound-unit recognition candidate string whose calculated acoustic likelihood is not less than a predetermined threshold.